

Trend Study 7-6-01

Study site name: Cedar Hollow.

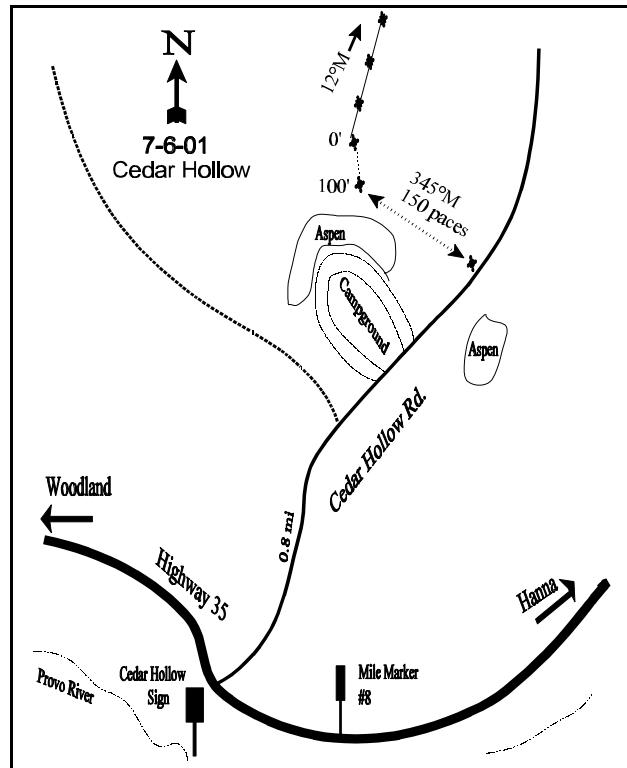
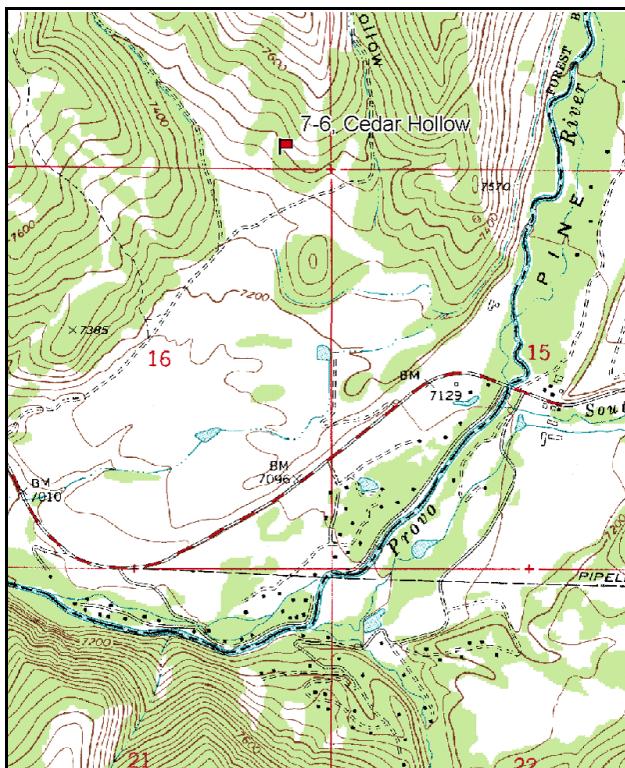
Vegetation type: Mountain Brush.

Compass bearing: frequency baseline 166 degrees magnetic.

Frequency belt placement: Line 1 (11 & 95ft), line 2 (71ft), line 3 (59ft), line 4 (34ft).

LOCATION DESCRIPTION

Eastbound on Highway 35 from Woodland, turn left (north) at the Cedar Hollow sign. If you pass mile-marker 8 you have gone too far. Travel 0.8 miles on the main dirt road passing two left turns, and stop next to a small witness post on the left side of the road. There is a small stand of aspen on the right. From the witness post walk at a bearing of 345 degrees magnetic for 150 paces to the 0-foot baseline stake. The 0-foot stake is marked by browse tag #416.



Map Name: Woodland

Township 3S, Range 7E, Section 16

Diagrammatic Sketch

UTM 4490451 N 487453 E

DISCUSSION

Trend Study No. 7-6

The Cedar Hollow study is located near the top end of normal winter range. This study lies at an elevation of approximately 7,400 feet on a moderately steep (15%), south-facing exposure. Because of the moderately high elevation, this area probably does not constitute critical range, more likely it acts as transitional spring-fall range for big game. There are generally few signs of heavy or excessive big game use on browse, except for bitterbrush and serviceberry because of their relatively low populations. The vegetative make up of the area consists of varying sized clumps of serviceberry, moderately tall Gambel oakbrush clones, and quaking aspen intermixed with more open areas dominated by mountain big sagebrush-grass and mountain snowberry. Pellet groups of deer, elk, and moose are present, yet none are very abundant. Cattle also graze the area. A pellet group transect read along the vegetation baseline in 2001 estimated 5 elk days use/acre (12 edu/ha), 20 deer days use/acre (50 ddu/ha), and 1 moose day use/acre (2 mdu/ha).

Soils appear to be moderately deep and well-drained. Effective rooting depth (refer to methods) was estimated at almost 11 inches in 1996. Soil texture is classified as a clay loam with a neutral soil reaction (7.0 pH). Surface rock is of varying size and covers an estimated 21% of the soil surface (pavement included). Parent material is sandstone and limestone. This area probably receives at least 20 inches of annual precipitation and thus has a fairly extensive vegetative cover. However, there are interspaces where the soil appears compacted where noticeable sheet and gully erosion has occurred. Overall soil condition is fair to good. An erosion condition class assessment determined stable soils on the site in 2001.

Vegetatively, the site is similar to that of other transitional ranges described earlier. Gambel oak occurs frequently in the study area but consists of clumps of mature plants that are partially unavailable because of their height. Oak probably has an ecological influence in the area greater than the data summary might indicate. The most important species based on abundance, cover, and relative palatability is mountain big sagebrush. Mountain big sagebrush density is estimated at about 1,800 plants/acre in 1996 and 2001. The sagebrush population had a very high incidence of decadent plants in 1984 at 75%. Percent decadence has been much lower since 1984, with current ('01) estimates at 29%. The proportion of the population showing poor vigor has been moderate in all years except 1996. Use was moderate to heavy on sagebrush in 1984, but has since declined to a level that is light to moderate. In past reports, it was noted that the sagebrush population on this site may be showing similar characteristics of other sagebrush communities where moderately high densities and prolonged drought had caused increased decadence and reduced vigor due to high intraspecific competition. These strongly competitive conditions would be moderated during periods of normal precipitation. Another plausible explanation for high decadence and reduced vigor on sagebrush at this elevation is winter injury. Annual leader growth on sagebrush averaged just under 2 inches in 2001.

Serviceberry and bitterbrush provide additional preferred forage, but they occur in low densities at an estimated 600 and 380 plants/acre in 2001 respectively. Both species show moderate to heavy use. Average annual leader growth was estimated at 2 inches for bitterbrush and 1.8 inches for serviceberry during the 2001 sample. Gambel oak occurs in scattered clones throughout the area, but this species is not extensively sampled by this particular study. Oak density was estimated at 900 stems/acre in 2001, and the entire population was classified as having poor vigor. Reduced vigor in the population of Gambel oak occurred because of a late snow storm and cold temperatures in June 2001. The resultant cold temperatures caused widespread meristematic and leaf death on oak, including this particular study.

This site only has a fair herbaceous understory component. Grasses are more productive than forbs, providing 33% of the total vegetation cover in 2001. Forbs provide 11% of the vegetation cover in 2001, with most coming from perennial species. Grasses are diverse on the site, which include several aggressive increasers

which provide an effective ground cover and an important source of livestock forage. A Carex, bulbous bluegrass, mutton bluegrass, and bluebunch wheatgrass are the most abundant grasses. Utilization on grasses was light to moderate in 1996, with no utilization apparent in 2001.

1984 APPARENT TREND ASSESSMENT

Almost all of the data and apparent trend parameters suggest a stable or even improving soil trend. Although some bare interspaces persist, they are not serious erosion sources and may in fact be stabilizing. Vegetative trend is more complex, but is also basically stable. The fate of mountain big sagebrush is unclear although there are a few indications of a declining population. Sagebrush density has remained relatively stable, but a decadent age structure may indicate a future change. Grass abundance and production is at least stable and may be increasing. In the future, it will be important to closely observe species such as Kentucky bluegrass and bulbous bluegrass. These increasers will be the most likely to benefit from a decline in big sagebrush or increased livestock grazing.

1990 TREND ASSESSMENT

Browse composition is basically unchanged. The oakbrush, although it has not greatly expanded, appears to be more productive and have a greater influence in 1990. Mountain big sagebrush shows a slightly lower density, which is not surprising based on the highly decadent population (75%) encountered during the initial sampling. Young shrubs have replaced some of the decadent plants, but overall density is down. Vigor is less than optimum on half of the sagebrush even though there has been only light to moderate utilization the last several years. Sagebrush cover averages about 10%. Serviceberry has increased in density. The 1990 data shows an increase in grass frequency and number of species encountered. A larger number of forb species were identified, surprising for late in a dry year. A slightly higher percent cover for rock and pavement was recorded in 1990. Vegetative and litter cover are adequate to minimize soil movement.

TREND ASSESSMENT

soil - stable (3)

browse - stable (3)

herbaceous understory - stable (3)

1996 TREND ASSESSMENT

The trend for soil is stable with slightly lower amounts of rock/pavement cover and bare ground. The browse trend is still considered stable. The increased density of mountain big sagebrush is primarily a function of the larger sampling design that picked up more plants. Mountain big sagebrush currently makes up 40% of the browse cover, has improved vigor, and a significantly lower percent decadence in the population. Bitterbrush and mountain snowberry are also in good health. The herbaceous understory is considered stable. Perennial grasses maintained stable sum of nested frequency values, while forbs declined in sum of nested frequency. However, grasses provide more than six times the amount of cover as forbs, so trend is considered stable.

TREND ASSESSMENT

soil - stable (3)

browse - stable (3)

herbaceous understory - stable (3)

2001 TREND ASSESSMENT

Soils have a stable trend. Bare ground slightly increased, but vegetation cover also increased. Trend for browse is stable. Mountain big sagebrush shows a stable density with use remaining light to moderate. Decadence is moderate at 29%, but much lower than that reported in 1984 and 1990. Sum of nested frequency increased for both perennial grasses and perennial forbs. Trend is considered slightly up overall.

TREND ASSESSMENT

soil - stable (3)

browse - stable (3)

herbaceous understory - slightly up (4)

HERBACEOUS TRENDS --

Herd unit 07 , Study no: 6

T y p e	Species	Nested Frequency				Quadrat Frequency				Average Cover %	
		'84	'90	'96	'01	'84	'90	'96	'01	'96	'01
G	Agropyron dasystachyum	-	-	-	2	-	-	-	1	-	.00
G	Agropyron spicatum	b152	b151	ab145	a107	60	55	55	43	2.03	2.06
G	Bromus carinatus	a-	a6	a-	b23	-	2	-	9	-	.20
G	Bromus inermis	-	12	-	-	-	4	-	-	-	-
G	Bromus tectorum (a)	-	-	1	-	-	-	-	1	-	.00
G	Carex spp.	73	92	68	78	22	29	26	26	4.08	4.29
G	Festuca spp.	-	-	3	-	-	-	-	1	-	.00
G	Koeleria cristata	-	-	-	2	-	-	-	1	-	.03
G	Melica bulbosa	-	-	3	1	-	-	-	1	1	.00
G	Poa bulbosa	a-	b79	b107	c199	-	37	35	67	3.57	4.99
G	Poa fendleriana	a97	ab130	ab105	b140	41	53	41	53	1.47	2.79
G	Poa pratensis	a46	b83	b107	a48	18	31	37	21	2.80	.81
G	Poa secunda	ab31	a19	b56	a23	16	11	25	8	.71	.33
G	Stipa columbiana	ab9	b28	a9	a7	5	12	4	3	.09	.21
Total for Annual Grasses		0	0	1	0	0	0	1	0	0.00	0
Total for Perennial Grasses		408	600	603	630	162	234	225	233	14.79	15.77
Total for Grasses		408	600	604	630	162	234	226	233	14.80	15.77
F	Agoseris glauca	-	4	-	4	-	2	-	2	-	.01
F	Allium spp.	a-	a-	a5	b24	-	-	3	10	.01	.10
F	Aster chilensis	b105	b121	a48	a35	39	48	21	14	.47	.44
F	Astragalus spp.	a-	a-	a2	b65	-	-	2	30	.01	.84
F	Balsamorhiza sagittata	7	16	11	14	5	10	6	9	.54	1.64
F	Castilleja linariaefolia	3	1	6	6	1	1	3	3	.04	.21
F	Calochortus nuttallii	-	2	3	4	-	1	1	2	.00	.01
F	Cirsium undulatum	14	17	8	8	8	10	4	4	.07	.09

T y p e	Species	Nested Frequency				Quadrat Frequency				Average Cover %	
		'84	'90	'96	'01	'84	'90	'96	'01	'96	'01
F	<i>Collomia linearis</i> (a)	-	-	^a 12	^b 39	-	-	4	18	.02	.16
F	<i>Comandra pallida</i>	80	83	58	69	35	33	23	27	.29	.78
F	<i>Collinsia parviflora</i> (a)	-	-	-	8	-	-	-	4	-	.02
F	<i>Crepis acuminata</i>	-	1	3	-	-	1	1	-	.00	-
F	<i>Epilobium brachycarpum</i> (a)	-	-	^a -	^b 26	-	-	-	11	-	.05
F	<i>Eriogonum racemosum</i>	^a 1	^{ab} 8	^b 12	^{ab} 7	1	4	7	4	.16	.04
F	<i>Eriogonum umbellatum</i>	-	4	-	6	-	3	-	3	-	.21
F	<i>Hackelia patens</i>	^b 10	^a -	^a -	^a -	5	-	-	-	-	-
F	<i>Holosteum umbellatum</i> (a)	-	-	2	2	-	-	1	1	.00	.00
F	<i>Ligusticum</i> spp.	-	5	-	-	-	2	-	-	-	-
F	<i>Lupinus argenteus</i>	-	8	-	7	-	3	-	4	.03	.21
F	<i>Machaeranthera canescens</i>	^b 30	^a 6	^a -	^a -	11	3	-	-	-	-
F	<i>Microsteris gracilis</i> (a)	-	-	^a -	^b 7	-	-	-	5	.00	.02
F	<i>Penstemon leonardi</i>	^a -	^b 17	^b 26	^b 18	-	9	12	9	.65	.34
F	<i>Phlox longifolia</i>	^a -	^c 32	^b 15	^{ab} 10	-	17	9	4	.04	.05
F	<i>Polygonum douglasii</i> (a)	-	-	8	-	-	-	3	-	.01	-
F	<i>Senecio integerrimus</i>	^a -	^a 1	^a 7	^b 21	-	1	4	12	.07	.18
F	<i>Solidago</i> spp.	^b 41	^a -	^a -	^a -	19	-	-	-	-	-
F	<i>Streptanthus cordatus</i>	1	2	-	3	1	1	-	1	-	.00
F	<i>Tragopogon dubius</i>	^a -	^a -	^a 1	^b 7	-	-	1	3	.00	.01
F	<i>Zigadenus paniculatus</i>	-	3	-	3	-	1	-	1	-	.00
Total for Annual Forbs		0	0	22	82	0	0	8	39	0.04	0.27
Total for Perennial Forbs		292	331	205	311	125	150	97	142	2.42	5.23
Total for Forbs		292	331	227	393	125	150	105	181	2.47	5.50

Values with different subscript letters are significantly different at alpha = 0.10 (annuals excluded)

BROWSE TRENDS --

Herd unit 07 , Study no: 6

Type	Species	Strip Frequency		Average Cover %	
		'96	'01	'96	'01
B	Amelanchier alnifolia	19	20	.22	.87
B	Artemisia tridentata vaseyana	59	58	8.10	8.01
B	Ceanothus velutinus	2	2	-	.15
B	Chrysothamnus depressus	0	1	-	-
B	Chrysothamnus viscidiflorus viscidiflorus	51	53	1.85	1.98
B	Eriogonum heracleoides	0	4	-	.06
B	Eriogonum microthecum	17	0	.22	-
B	Mahonia repens	65	60	1.16	2.63
B	Opuntia spp.	3	3	.03	-
B	Pachistima myrsinites	4	0	.03	-
B	Purshia tridentata	15	16	2.93	3.94
B	Quercus gambelii	3	5	1.25	1.63
B	Symphoricarpos oreophilus	67	65	4.55	7.30
Total for Browse		305	287	20.35	26.61

CANOPY COVER --

Herd unit 07 , Study no: 6

Species	Percent Cover	
	'96	'01
Quercus gambelii	3	3

BASIC COVER --

Herd unit 07 , Study no: 6

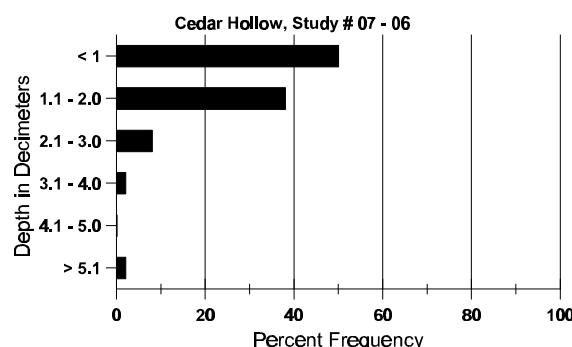
Cover Type	Nested Frequency		Average Cover %			
	'96	'01	'84	'90	'96	'01
Vegetation	350	366	3.75	16.50	39.31	51.52
Rock	265	223	12.00	12.25	15.11	14.48
Pavement	213	221	7.00	11.75	4.56	7.09
Litter	384	366	60.00	46.75	42.47	35.27
Cryptogams	28	9	.25	0	.53	.21
Bare Ground	235	262	17.00	12.75	11.13	17.47

SOIL ANALYSIS DATA --

Herd Unit 07, Study no: 06, Cedar Hollow

Effective rooting depth (in)	Temp °F (depth)	PH	%sand	%silt	%clay	%OM	PPM P	PPM K	dS/m
10.6	53.8 (14.5)	7.0	40.2	30.4	29.4	4.9	11.5	166.4	.6

Stoniness Index



PELLET GROUP FREQUENCY --

Herd unit 07 , Study no: 6

Type	Quadrat Frequency	
	'96	'01
Moose	-	2
Elk	5	-
Deer	7	11
Cattle	1	2
Rabbit	-	-

Pellet Transect	
Pellet Groups per Acre	Days Use per Acre (ha)
01	01
17	1 (2)
61	5 (12)
261	20 (50)
-	-
17	N/A

BROWSE CHARACTERISTICS --

Herd unit 07 , Study no: 6

A G E	Y R	Form Class (No. of Plants)									Vigor Class				Plants Per Acre	Average (inches) Ht. Cr.	Total
		1	2	3	4	5	6	7	8	9	1	2	3	4			
Amelanchier alnifolia																	
S	84	-	-	-	-	-	-	-	-	-	-	-	-	-	0		0
	90	2	-	-	2	-	-	1	-	-	5	-	-	-	333		5
	96	-	-	-	-	-	-	-	-	-	-	-	-	-	0		0
	01	-	-	-	-	-	-	-	-	-	-	-	-	-	0		0
Y	84	-	-	-	-	-	-	-	-	-	-	-	-	-	0		0
	90	3	1	1	1	-	-	3	-	-	7	-	2	-	600		9
	96	-	2	-	3	-	-	-	-	-	4	1	-	-	100		5
	01	11	1	-	-	-	-	-	-	-	12	-	-	-	240		12
M	84	-	-	-	-	-	-	-	-	-	-	-	-	-	0	-	-
	90	-	-	-	-	-	-	-	-	-	1	1	-	-	66	89	71
	96	1	8	1	2	-	-	-	-	-	6	4	2	-	240	30	32
	01	2	-	2	1	2	-	-	-	-	6	-	1	-	140	43	31
D	84	-	-	-	-	-	1	-	-	-	1	-	-	-	66		1
	90	-	-	-	-	-	-	1	-	-	1	-	-	-	66		1
	96	-	2	-	-	-	-	-	-	-	1	1	-	-	40		2
	01	3	2	-	-	-	6	-	-	-	7	1	2	1	220		11
% Plants Showing		<u>Moderate Use</u>		<u>Heavy Use</u>		<u>Poor Vigor</u>				<u>%Change</u>							
	'84	00%		100%		00%				+91%							
	'90	09%		18%		18%				-48%							
	'96	63%		05%		11%				+37%							
	'01	17%		27%		13%											
Total Plants/Acre (excluding Dead & Seedlings)												'84	66	Dec:	100%		
												'90	732		9%		
												'96	380		11%		
												'01	600		37%		

A G E	Y	Form Class (No. of Plants)									Vigor Class				Plants Per Acre	Average (inches) Ht. Cr.	Total
		1	2	3	4	5	6	7	8	9	1	2	3	4			
Artemesia tridentata vaseyana																	
S	84	1	-	-	-	-	-	-	-	-	1	-	-	-	66		1
	90	-	-	-	-	-	-	-	-	-	-	-	-	-	0		0
	96	-	-	-	-	-	-	-	-	-	-	-	-	-	0		0
	01	-	-	-	-	-	-	-	-	-	-	-	-	-	0		0
Y	84	-	-	-	-	-	-	-	-	-	-	-	-	-	0		0
	90	1	-	-	-	-	-	1	-	-	-	2	-	-	133		2
	96	3	-	-	-	-	-	-	-	-	3	-	-	-	60		3
	01	-	-	-	-	-	-	-	-	-	-	-	-	-	0		0
M	84	-	3	2	-	-	-	-	-	-	5	-	-	-	333	23 35	5
	90	3	3	-	1	-	-	1	-	-	4	3	-	1	533	26 28	8
	96	50	19	-	1	-	-	-	-	-	69	-	1	-	1400	21 33	70
	01	46	11	6	1	-	-	-	-	-	61	-	3	-	1280	25 37	64
D	84	-	6	9	-	-	-	-	-	-	12	-	2	1	1000		15
	90	5	2	-	-	-	-	-	-	-	5	-	-	2	466		7
	96	6	11	1	-	-	-	-	-	-	14	-	-	4	360		18
	01	16	7	3	-	-	-	-	-	-	13	1	8	4	520		26
X	84	-	-	-	-	-	-	-	-	-	-	-	-	-	0		0
	90	-	-	-	-	-	-	-	-	-	-	-	-	-	0		0
	96	-	-	-	-	-	-	-	-	-	-	-	-	-	700		35
	01	-	-	-	-	-	-	-	-	-	-	-	-	-	320		16
% Plants Showing		<u>Moderate Use</u>			<u>Heavy Use</u>			<u>Poor Vigor</u>				<u>%Change</u>					
	'84	45%			55%			15%				-15%					
	'90	29%			00%			18%				+38%					
	'96	33%			01%			05%				- 1%					
	'01	20%			10%			17%									
Total Plants/Acre (excluding Dead & Seedlings)												'84	1333	Dec:	75%		
												'90	1132		41%		
												'96	1820		20%		
												'01	1800		29%		
Ceanothus velutinus																	
M	84	-	-	-	-	-	-	-	-	-	-	-	-	-	0	-	-
	90	-	-	-	-	-	-	-	-	-	-	-	-	-	0	-	-
	96	-	-	-	2	-	-	-	-	-	2	-	-	-	40	24 90	2
	01	4	-	-	-	-	-	-	-	-	4	-	-	-	80	19 50	4
% Plants Showing		<u>Moderate Use</u>			<u>Heavy Use</u>			<u>Poor Vigor</u>				<u>%Change</u>					
	'84	00%			00%			00%									
	'90	00%			00%			00%									
	'96	00%			00%			00%				+50%					
	'01	00%			00%			00%									
Total Plants/Acre (excluding Dead & Seedlings)												'84	0	Dec:	-		
												'90	0		-		
												'96	40		-		
												'01	80		-		

A G E	Y	Form Class (No. of Plants)									Vigor Class				Plants Per Acre	Average (inches) Ht. Cr.	Total	
		1	2	3	4	5	6	7	8	9	1	2	3	4				
<i>Chrysanthemum depressus</i>																		
M	84	-	-	-	-	-	-	-	-	-	-	-	-	-	0	-	-	0
	90	-	-	-	-	-	-	-	-	-	-	-	-	-	0	-	-	0
	96	-	-	-	-	-	-	-	-	-	-	-	-	-	0	-	-	0
	01	1	-	-	-	-	-	-	-	-	1	-	-	-	20	-	-	1
% Plants Showing		<u>Moderate Use</u>			<u>Heavy Use</u>			<u>Poor Vigor</u>				<u>%Change</u>						
		'84	00%		00%			'84	00%									
		'90	00%		00%			'90	00%									
		'96	00%		00%			'96	00%									
		'01	00%		00%			'01	00%									
Total Plants/Acre (excluding Dead & Seedlings)												'84	0	Dec:	-			
												'90	0		-			
												'96	0		-			
												'01	20		-			
<i>Chrysanthemum viscidiflorus viscidiflorus</i>																		
Y	84	-	-	-	-	-	-	-	-	-	-	-	-	-	0			0
	90	-	-	-	-	-	-	1	-	-	1	-	-	-	66			1
	96	7	-	-	-	-	-	-	-	-	7	-	-	-	140			7
	01	2	-	-	-	-	-	-	-	-	2	-	-	-	40			2
M	84	-	-	-	-	-	-	-	-	-	-	-	-	-	0	-	-	0
	90	4	1	-	-	-	-	1	-	-	5	-	1	-	400	12	9	6
	96	89	1	-	9	-	-	-	-	-	99	-	-	-	1980	12	16	99
	01	81	3	-	3	-	-	-	-	-	86	1	-	-	1740	10	16	87
D	84	1	2	-	-	-	-	-	-	-	3	-	-	-	200			3
	90	4	-	-	1	-	-	-	-	-	2	-	-	3	333			5
	96	-	-	-	-	-	-	-	-	-	-	-	-	-	0			0
	01	10	-	-	-	-	-	-	-	-	10	-	-	-	200			10
% Plants Showing		<u>Moderate Use</u>			<u>Heavy Use</u>			<u>Poor Vigor</u>				<u>%Change</u>						
		'84	67%		00%			'84	00%						+75%			
		'90	08%		00%			'90	33%						+62%			
		'96	.94%		00%			'96	00%						- 7%			
		'01	03%		00%			'01	00%									
Total Plants/Acre (excluding Dead & Seedlings)												'84	200	Dec:	100%			
												'90	799		42%			
												'96	2120		0%			
												'01	1980		10%			

A G E	Y	Form Class (No. of Plants)									Vigor Class				Plants Per Acre	Average (inches) Ht. Cr.	Total	
		1	2	3	4	5	6	7	8	9	1	2	3	4				
<i>Eriogonum heracleoides</i>																		
M	84	-	-	-	-	-	-	-	-	-	-	-	-	-	0	-	-	0
	90	-	-	-	-	-	-	-	-	-	-	-	-	-	0	-	-	0
	96	-	-	-	-	-	-	-	-	-	-	-	-	-	0	-	-	0
M	01	2	-	-	2	-	-	-	-	-	4	-	-	-	80	10	10	4
% Plants Showing		<u>Moderate Use</u>			<u>Heavy Use</u>			<u>Poor Vigor</u>				<u>%Change</u>						
		'84	00%		00%			00%										
		'90	00%		00%			00%										
		'96	00%		00%			00%										
		'01	00%		00%			00%										
Total Plants/Acre (excluding Dead & Seedlings)												'84	0	Dec:	-			
												'90	0		-			
												'96	0		-			
												'01	80		-			
<i>Eriogonum microthecum</i>																		
Y	84	3	-	-	-	-	-	-	-	-	3	-	-	-	200		3	
	90	-	-	-	-	-	-	-	-	-	-	-	-	-	0		0	
	96	1	-	-	-	-	-	-	-	-	1	-	-	-	20		1	
M	01	-	-	-	-	-	-	-	-	-	-	-	-	-	0		0	
M	84	6	1	-	-	-	-	-	-	-	7	-	-	-	466	5	6	7
	90	-	-	-	-	-	-	-	-	-	-	-	-	-	0	-	-	0
	96	15	-	-	2	-	-	-	-	-	17	-	-	-	340	7	12	17
M	01	-	-	-	-	-	-	-	-	-	-	-	-	-	0	-	-	0
% Plants Showing		<u>Moderate Use</u>			<u>Heavy Use</u>			<u>Poor Vigor</u>				<u>%Change</u>						
		'84	10%		00%			00%										
		'90	00%		00%			00%										
		'96	00%		00%			00%										
		'01	00%		00%			00%										
Total Plants/Acre (excluding Dead & Seedlings)												'84	666	Dec:	-			
												'90	0		-			
												'96	360		-			
												'01	0		-			

A G E	Y R	Form Class (No. of Plants)									Vigor Class				Plants Per Acre	Average (inches) Ht. Cr.	Total										
		1	2	3	4	5	6	7	8	9	1	2	3	4													
Mahonia repens																											
S	84	-	-	-	-	-	-	-	-	-	-	-	-	-	0		0										
	90	50	-	-	3	-	-	-	-	-	53	-	-	-	3533		53										
	96	-	-	-	-	-	-	-	-	-	-	-	-	-	0		0										
	01	-	-	-	-	-	-	-	-	-	-	-	-	-	0		0										
Y	84	296	-	-	-	-	-	-	-	-	296	-	-	-	19733		296										
	90	368	-	-	107	-	-	28	-	-	503	-	-	-	33533		503										
	96	105	-	-	21	-	-	-	-	-	126	-	-	-	2520		126										
	01	1	-	-	-	-	-	-	-	-	1	-	-	-	20		1										
M	84	13	-	-	-	-	-	-	-	-	13	-	-	-	866	6 4	13										
	90	271	1	-	78	-	-	74	-	-	424	-	-	-	28266	6 4	424										
	96	323	-	-	34	-	-	-	-	-	357	-	-	-	7140	4 6	357										
	01	696	-	-	15	-	-	-	-	-	711	-	-	-	14220	4 5	711										
D	84	-	-	-	-	-	-	-	-	-	-	-	-	-	0		0										
	90	-	-	-	-	-	-	-	-	-	-	-	-	-	0		0										
	96	-	-	-	-	-	-	-	-	-	-	-	-	-	0		0										
	01	1	-	-	-	-	-	-	-	-	-	-	-	-	1	20	1										
X	84	-	-	-	-	-	-	-	-	-	-	-	-	-	0		0										
	90	-	-	-	-	-	-	-	-	-	-	-	-	-	0		0										
	96	-	-	-	-	-	-	-	-	-	-	-	-	-	80		4										
	01	-	-	-	-	-	-	-	-	-	-	-	-	-	0		0										
% Plants Showing		<u>Moderate Use</u>			<u>Heavy Use</u>			<u>Poor Vigor</u>				<u>%Change</u>															
'84		00%			00%			00%				+67%															
'90		.10%			00%			00%				-84%															
'96		00%			00%			00%				+32%															
'01		00%			00%			.14%																			
Total Plants/Acre (excluding Dead & Seedlings)												'84	20599	Dec:	0%												
												'90	61799		0%												
												'96	9660		0%												
												'01	14260		0%												

A G R E	Y	Form Class (No. of Plants)									Vigor Class				Plants Per Acre	Average (inches) Ht. Cr.	Total
		1	2	3	4	5	6	7	8	9	1	2	3	4			
Opuntia spp.																	
Y	84	-	-	-	-	-	-	-	-	-	-	-	-	-	0		0
	90	-	-	-	-	-	-	-	-	-	-	-	-	-	0		0
	96	-	-	-	-	-	-	-	-	-	-	-	-	-	0		0
	01	1	-	-	-	-	-	-	-	-	1	-	-	-	20		1
M	84	-	-	-	-	-	-	-	-	-	-	-	-	-	0	-	0
	90	-	-	-	-	-	-	-	-	-	-	-	-	-	0	-	0
	96	3	-	-	-	-	-	-	-	-	3	-	-	-	60	4 11	3
	01	1	-	-	7	-	-	-	-	-	8	-	-	-	160	4 10	8
% Plants Showing		<u>Moderate Use</u>			<u>Heavy Use</u>			<u>Poor Vigor</u>				<u>%Change</u>					
	'84	00%			00%			00%									
	'90	00%			00%			00%									
	'96	00%			00%			00%				+67%					
	'01	00%			00%			00%									
Total Plants/Acre (excluding Dead & Seedlings)												'84	0	Dec:	-		
												'90	0	-	-		
												'96	60	-	-		
												'01	180	-	-		
Pachistima myrsinoides																	
Y	84	-	-	-	-	-	-	-	-	-	-	-	-	-	0		0
	90	-	-	-	-	-	-	-	-	-	-	-	-	-	0		0
	96	1	-	-	3	-	-	-	-	-	4	-	-	-	80		4
	01	-	-	-	-	-	-	-	-	-	-	-	-	-	0		0
M	84	-	-	-	-	-	-	-	-	-	-	-	-	-	0	-	0
	90	-	-	-	-	-	-	-	-	-	-	-	-	-	0	-	0
	96	6	-	-	-	-	-	-	-	-	6	-	-	-	120	12 36	6
	01	-	-	-	-	-	-	-	-	-	-	-	-	-	0	-	0
% Plants Showing		<u>Moderate Use</u>			<u>Heavy Use</u>			<u>Poor Vigor</u>				<u>%Change</u>					
	'84	00%			00%			00%									
	'90	00%			00%			00%									
	'96	00%			00%			00%									
	'01	00%			00%			00%									
Total Plants/Acre (excluding Dead & Seedlings)												'84	0	Dec:	-		
												'90	0	-	-		
												'96	200	-	-		
												'01	0	-	-		

A G E	Y	Form Class (No. of Plants)									Vigor Class				Plants Per Acre	Average (inches) Ht. Cr.	Total										
		1	2	3	4	5	6	7	8	9	1	2	3	4													
Purshia tridentata																											
Y	84	-	-	-	-	-	-	-	-	-	-	-	-	-	0		0										
	90	-	-	-	-	-	-	-	-	-	-	-	-	-	0		0										
	96	1	-	-	-	-	-	-	-	-	1	-	-	-	20		1										
	01	-	-	-	-	-	-	-	-	-	-	-	-	-	0		0										
M	84	-	-	-	-	-	-	-	-	-	-	-	-	-	0	-	-										
	90	-	-	-	-	-	-	-	-	-	-	-	-	-	0	-	0										
	96	4	9	2	-	-	-	-	-	-	15	-	-	-	300	15	60										
	01	9	2	5	1	-	1	-	-	-	18	-	-	-	360	16	70										
D	84	-	-	-	-	-	-	-	-	-	-	-	-	-	0		0										
	90	-	-	-	-	-	-	-	-	-	-	-	-	-	0		0										
	96	-	-	-	-	-	-	-	-	-	-	-	-	-	0		0										
	01	1	-	-	-	-	-	-	-	-	1	-	-	-	20		1										
% Plants Showing		<u>Moderate Use</u>			<u>Heavy Use</u>			<u>Poor Vigor</u>				<u>%Change</u>															
'84		00%			00%			00%																			
'90		00%			00%			00%																			
'96		56%			13%			00%				+16%															
'01		11%			32%			00%																			
Total Plants/Acre (excluding Dead & Seedlings)												'84	0	Dec:	0%												
												'90	0		0%												
												'96	320		0%												
												'01	380		5%												

A G E	Y R	Form Class (No. of Plants)									Vigor Class				Plants Per Acre	Average (inches) Ht. Cr.	Total										
		1	2	3	4	5	6	7	8	9	1	2	3	4													
Quercus gambelii																											
S	84	-	-	-	-	-	-	-	-	-	-	-	-	-	0		0										
	90	1	-	-	2	-	-	-	2	-	-	5	-	-	333		5										
	96	1	-	-	-	-	-	-	-	-	-	1	-	-	20		1										
	01	-	-	-	-	-	-	-	-	-	-	-	-	-	0		0										
Y	84	5	-	-	-	-	-	-	-	-	-	5	-	-	333		5										
	90	3	1	-	8	-	-	-	4	-	-	16	-	-	1066		16										
	96	-	-	-	-	-	-	-	-	-	-	-	-	-	0		0										
	01	-	-	-	-	-	-	-	-	-	-	-	-	-	0		0										
M	84	-	-	-	-	-	1	-	1	-	2	-	-	-	133	67 57	2										
	90	17	-	-	-	-	-	-	2	-	19	-	-	-	1266	72 23	19										
	96	3	-	-	-	-	-	-	-	-	3	-	-	-	60	77 98	3										
	01	7	-	4	34	-	-	-	-	-	-	-	-	45	-	900	- -	45									
D	84	-	-	-	-	-	-	-	-	-	-	-	-	-	0		0										
	90	2	-	-	-	-	-	-	-	-	2	-	-	-	133		2										
	96	-	-	-	-	-	-	-	-	-	-	-	-	-	0		0										
	01	-	-	-	-	-	-	-	-	-	-	-	-	-	0		0										
X	84	-	-	-	-	-	-	-	-	-	-	-	-	-	0		0										
	90	-	-	-	-	-	-	-	-	-	-	-	-	-	0		0										
	96	-	-	-	-	-	-	-	-	-	-	-	-	-	0		0										
	01	-	-	-	-	-	-	-	-	-	-	-	-	-	40		2										
% Plants Showing		<u>Moderate Use</u>			<u>Heavy Use</u>			<u>Poor Vigor</u>				<u>%Change</u>															
'84		00%			14%			00%				+81%															
'90		03%			00%			00%				-98%															
'96		00%			00%			00%				+93%															
'01		00%			09%			100%																			
Total Plants/Acre (excluding Dead & Seedlings)												'84	466	Dec:	0%												
												'90	2465		5%												
												'96	60		0%												
												'01	900		0%												

A G R E	Y	Form Class (No. of Plants)									Vigor Class				Plants Per Acre	Average (inches) Ht. Cr.	Total
		1	2	3	4	5	6	7	8	9	1	2	3	4			
Rosa woodsii																	
Y	84	3	-	-	-	-	-	-	-	-	3	-	-	-	200		3
	90	-	-	-	2	-	-	-	-	-	2	-	-	-	133		2
	96	-	-	-	-	-	-	-	-	-	-	-	-	-	0		0
	01	-	-	-	-	-	-	-	-	-	-	-	-	-	0		0
M	84	-	-	2	-	-	-	-	-	-	1	-	1	-	133	25 5	2
	90	2	-	-	-	-	-	-	-	-	2	-	-	-	133	18 7	2
	96	-	-	-	-	-	-	-	-	-	-	-	-	-	0	- -	0
	01	-	-	-	-	-	-	-	-	-	-	-	-	-	0	- -	0
% Plants Showing		<u>Moderate Use</u>			<u>Heavy Use</u>			<u>Poor Vigor</u>				<u>% Change</u>					
	'84	00%			40%			20%				-20%					
	'90	00%			00%			00%									
	'96	00%			00%			00%									
	'01	00%			00%			00%									
Total Plants/Acre (excluding Dead & Seedlings)												'84	333	Dec:	-		
												'90	266		-		
												'96	0		-		
												'01	0		-		

A G E	Y	Form Class (No. of Plants)									Vigor Class				Plants Per Acre	Average (inches) Ht. Cr.	Total										
		1	2	3	4	5	6	7	8	9	1	2	3	4													
Symphoricarpos oreophilus																											
S	84	-	-	-	-	-	-	-	-	-	-	-	-	-	0		0										
	90	7	-	-	-	-	-	-	1	-	-	8	-	-	533		8										
	96	4	-	-	-	-	-	-	-	-	-	4	-	-	80		4										
	01	-	-	-	-	-	-	-	-	-	-	-	-	-	0		0										
Y	84	11	9	1	-	-	-	-	-	-	20	-	1	-	1400		21										
	90	15	8	-	10	-	-	-	-	-	30	-	3	-	2200		33										
	96	17	-	-	1	-	-	-	-	-	18	-	-	-	360		18										
	01	-	-	-	-	-	-	-	-	-	-	-	-	-	0		0										
M	84	12	5	1	-	-	-	-	-	-	18	-	-	-	1200	23 36	18										
	90	13	22	-	25	-	-	8	-	-	53	1	14	-	4533	18 24	68										
	96	98	3	-	10	-	-	-	-	-	106	-	5	-	2220	17 28	111										
	01	90	4	-	7	1	-	-	-	-	98	4	-	-	2040	16 28	102										
D	84	2	3	-	-	-	-	-	-	-	4	-	1	-	333		5										
	90	2	3	1	-	-	-	-	-	-	4	-	-	2	400		6										
	96	3	-	-	-	-	-	-	-	-	2	-	-	1	60		3										
	01	3	-	-	-	-	-	-	-	-	3	-	-	-	60		3										
X	84	-	-	-	-	-	-	-	-	-	-	-	-	-	0		0										
	90	-	-	-	-	-	-	-	-	-	-	-	-	-	0		0										
	96	-	-	-	-	-	-	-	-	-	-	-	-	-	20		1										
	01	-	-	-	-	-	-	-	-	-	-	-	-	-	0		0										
% Plants Showing		<u>Moderate Use</u>			<u>Heavy Use</u>			<u>Poor Vigor</u>				<u>%Change</u>															
'84		39%			05%			05%				+59%															
'90		31%			.93%			18%				-63%															
'96		02%			00%			05%				-20%															
'01		05%			00%			00%																			
Total Plants/Acre (excluding Dead & Seedlings)												'84	2933	Dec:	11%												
												'90	7133		6%												
												'96	2640		2%												
												'01	2100		3%												